IN THE CLAIMS:

Please CANCEL without prejudice or disclaimer claims 1-3 in the underlying PCT application, including any amendments under Article 19 or 34 and ADD new claims 4-6 in accordance with the following:

Claims 1-3 (Cancelled).

4. (New) A nonlinear precoding method based on modulo arithmetic for the transmit-side preequalization of K user signals to be transmitted concurrently using a frequency in a digital broadcast channel with known transmission behavior set up between a central transmitting station and K decentralized, non-interconnected receiving stations, the user signals consisting of data symbols a_k with k from 1 to K from a signal constellation having M_k levels and a signal point spacing A_k with a periodic multiple representation of the undisturbedly transmitted data symbols a_k in data symbol intervals congruent for K receive-side modulo decision devices, a transmit-power-minimizing selection of representatives v_k from the range of values $a_k + A_k \cdot M_k \cdot z_{kk}$ where z_{kk} are integers, and linear preequalization of the selected representatives v_k to form transmit signals x_k to be transmitted, comprising:

including interference symbols in the digital broadcast channel superimposed on the data symbols a_k and periodic multiple representation thereof due to cross-coupled user signals by an adapted periodic multiple representation, the interference symbols between the data symbol a_l with l from 1 to K and not equal to k and the data symbol a_k being assigned periodic representatives from a range of values $A_k \cdot M_k \cdot z_{lk}$ where z_{lk} are integers; and

eliminating the interference symbols by the K receive-side modulo decision devices.

5. (New) A nonlinear precoding method according to claim 4, wherein mathematically required transmission behavior of the broadcast channel is achieved by factorization of the channel matrix H, describing current transmission behavior and known prior to transmission, into a reduced channel matrix H_{red} to be preequalized and a residual interference matrix R, where $H = R\,H_{red}$, the residual interference matrix R assuming only 1 on the main diagonal and all other elements being row-wise integral multiples of the M_k levels of the signal constellation used and the reduced channel matrix H_{red} being obtained by factorization into a matrix F with orthogonal columns, a lower triangular matrix B and a permutation matrix P with the introduction of a receive-side scalar gain factor g according to $P^T H_{red} = 1/g\ B\ F^{-1}$.

6. (New) A nonlinear precoding method according to claim 5, wherein offset compensation is already carried out on the transmit signals x_k prior to transmission.

7. (New) A nonlinear precoding method according to claim 4, wherein offset compensation is already carried out on the transmit signals x_k prior to transmission.